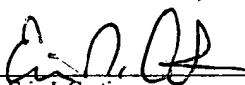


**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellant: Chrissan et al. Examiner: Azad, A.  
Serial No.: 09/392,124 Group Art Unit: 2654  
Filed: September 8, 1999 Docket No.: 8X8S.239PA  
Title: Varying Pulse Amplitude Multi-Pulse Analysis Speech Processor And Method

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence and the papers, as described hereinabove, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Board of Patent Appeals and Interferences, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450, on April 27, 2006.

By: 

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**REPLY BRIEF**

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Sir:

This is a Reply Brief submitted pursuant to 37 C.F.R. § 41.41(a)(1) for the above-referenced patent application. Appellant requests that the appeal of the instant application be maintained. If necessary, authority is given to charge/credit deposit account 50-0996 (8X8S.239PA) any fees/overages in support of this filing.

The content of this Reply Brief complies with the requirements set forth in MPEP § 1208(I), specifically the modified requirements A-D.

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**I. Status of Claims**

Claims 1-32 are pending and each of the appealed claims is rejected.

**II. Grounds of Rejection to be Reviewed on Appeal**

- A. Claims 1-27 and 29-32 are rejected under 35 U.S.C. § 103(a) over Bialik *et al.* (U.S. Pat. No. 5,568,588) in view of Adoul *et al.* (U.S. Patent No. 5,754,976).
- B. Claim 28 is rejected under 35 U.S.C. § 103(a) over Bialik *et al.* in view of Adoul *et al.* and further in view of Sklar (Digital Communications Fundamentals and Application).

### **III. Argument**

The claim rejections must be reversed for reasons as discussed in sections A-D below. In short, all of the claim rejections require that the primary '588 reference be modified to include sequences of variable-amplitude pulses as claimed in the instant invention; however, the '588 reference is clearly limited to sequences of equal pulses and cannot be so modified. In addition, the proposed combination of the secondary '976 reference with the '588 reference fails because the cited codevector-waveform of the '976 reference, when (improperly) combined with the '588 reference, does not correspond to claimed limitations directed to sequences of variable-amplitude pulses generated from a target vector. Moreover, the proposed replacement of the equal-amplitude pulse sequences in the '588 reference with the codevector-waveform of the '976 reference would necessarily undermine the purpose of the '588 reference (and is therefore unmotivated).

The following addresses the above and other issues in greater detail.

#### **A. The '588 reference does not teach or suggest, nor can it be modified to include, a sequence of variable amplitude pulses; the '588 reference therefore cannot correspond to the claimed limitations either directly or as modified.**

The Examiner's assertion that the '588 reference implicitly teaches a sequence of variable-amplitude pulses and is thus amenable to modification with such a sequence is contrary to the figures, description and stated purpose of the '588 reference. For example, the Examiner asserts (incredulously) that the Appellant has misinterpreted FIGs. 3A and 3B of the '588 reference as showing equal amplitude pulses, yet these figures explicitly show pulses of equal amplitude. The Examiner then further asserts that, because the pulse sequence determiner 25 of the '588 reference uses different gain indexes, and because "both sequences have the same first sample position but [the] rest of the pulses are at other positions", the '588 reference somehow supports variable amplitude sequences.

These assertions by the Examiner flatly contradict the specification of the '588 reference and fail to establish correspondence between the '588 reference and the claimed limitations. Regarding the figures, both FIGs. 3A and 3B clearly show pulses of equal amplitude, at the first position as well as for other pulses in each sequence (*see FIG. 3A and FIG. 3B and description at lines 28-33 of the '588 reference*). The aforesaid pulse sequence determiner 25 specifically

determines a “sequence of equal amplitude pulses” (column 4, lines 22-23) at a current gain level with positive and negative pulses as shown in FIGs. 3A and 3B. *See, e.g.*, column 4, lines 24-31. While the ‘588 reference discusses a range of gain levels, each pulse sequence is matched with only one gain index, which is used to generate the signal. *See, e.g.*, column 4, lines 36-47. This is consistent with the stated object of the ‘588 invention, for generating a sequence of pulses at a particular gain level (*see, e.g.*, column 2, lines 1-6), and a train of equal amplitude, same sign pulses (*see, e.g.*, column 2, line 22).

In regard to the Examiner’s reference to column 5, line 55 to column 6, line 27, with particular reference to steps 54-58 and 64-70, Appellant submits that these portions also refer to pulse sequences of equal amplitude, thus failing to teach or suggest the claimed limitations. For example, in step 62, the determiner 25 updates the local criterion with a previous pulse, using the gain index (j) for the previous pulse. In the loop of steps 64-70, the pulse sequence determiner 25 determines the location of a pulse, and in step 72, stores the pulse value at the current gain (*i.e.*, consistent with the previous pulse). Steps 62-74 are repeated for each pulse in a sequence of pulses, with positions of the pulses updated but using the same gain for all pulses in the sequence, generating a sequence of pulses with equal amplitude.

In view of the clear teaching in all of the ‘588 embodiments and the ‘588 claims (*see also* equal-amplitude pulses in Figs. 3A, 3B, 4A and 4B), none of these cited portions (or any other aspects of the ‘588 reference) teaches or suggests claim limitations directed to “sequences of variable-amplitude pulses.” Moreover, the ‘588 reference cannot “implicitly” teach, nor is modifiable to include, sequences of variable-amplitude pulses as the Examiner asserts; such teaching or modification is contrary to the state purpose of the ‘588 reference. Therefore, all of the Section 103 rejections, which rely upon such modification or teaching, are improper and must be reversed.

**B: The teachings in the ‘976 reference as (improperly) combined with the teachings of the ‘588 reference do not teach or suggest the claimed limitations.**

As discussed above and acknowledged by the Examiner, the ‘588 reference does not teach or suggest claimed limitations directed to sequences of variable-amplitude pulses. In attempting to explicitly modify the ‘588 reference to show correspondence to the claimed limitations, the Examiner has asserted a combination that replaces the equal-amplitude pulse sequences (and,

correspondingly, the object) of the ‘588 reference with a codevector-waveform pulse from the ‘976 reference. Appellant submits that the Examiner has failed to show how the codevector-waveform pulse of the ‘976 reference would be combined with the ‘588 reference or would correspond to the claimed limitations in the instant invention. Specifically, it remains unclear as to how such codevector-waveform pulses would apply to either the ‘588 reference or the claimed invention, or to any sequence-based speech processing approach implemented in a manner consistent with the claimed limitations.

The Examiner has further failed to show how the proposed combination corresponds to claimed limitations directed to the generation of variable-amplitude pulses using a target vector and short-term characteristics as claimed. As discussed in the Appeal Brief, the proposed modification to the “target vector matcher 28” would necessarily operate as a function of an input signal that changes the amplitude of the pulses in each given sequence. However, with this proposed modification, the “target vector matcher 28” still acts based on the following two inputs: the target vector from element 13, and each pulse sequence provided by line 34. As is typical for such standard MPA implementations (column 1, lines 35-45), the target vector is provided as an input solely as a reference against which the match (estimation) is made. Each pulse sequence provided by line 34 is a sequence of equal amplitude pulses as illustrated, *e.g.*, in Figs. 3A, 3B, 4A, and 4B, the discussions at column 2, lines 50-51, at column 6, lines 8-29, and in each issued claim of the ‘588 reference. The Examiner’s Answer referencing this discussion is further confusing, as it addresses the Appellant’s disclosure and its operation, without reference to the asserted “target vector matcher 28” of the ‘588 reference. Therefore, the Examiner has not shown how the cited portions of the ‘976 reference, as combined with the ‘588 reference, teach or suggest the claimed limitations.

In view of the above, the proposed modification of the ‘588 reference cannot result in a hypothetical embodiment that corresponds to Appellant’s claimed limitations including, for example, “generating from the target vector and the short term characteristics, a plurality of sequences of variable-amplitude pulses.” The Section 103 rejections must therefore be reversed.

**C: The combination of the ‘976 reference with the ‘588 reference is improper because it defeats the purpose of the ‘588 reference and because the Examiner has not shown how the combination can function.**

As discussed above, the ‘588 reference is directed to sequences of pulses, with each pulse in a particular sequence having an equal amplitude, corresponding to a common gain value. *See, e.g.*, FIGs. 3A and 3B and the corresponding discussion in connection with the steps in FIG. 2. The object (purpose) of the ‘588 reference is clearly to generate pulses of equal amplitude, as discussed in the Summary of the Invention in column 2, and as more specifically described with the pulse sequence determiner 25 determining a “sequence of equal amplitude pulses” (column 4, lines 22-23) and at other portions of the Specification. These equal amplitude pulses correspond to a current gain level with positive and negative pulses, with examples shown in FIGs. 3A and 3B. *See, e.g.*, column 4, lines 24-31.

Modifying the ‘588 reference to replace the sequence of equal amplitude pulses with either a sequence of variable amplitude pulses as claimed in the instant invention, or the alleged teaching of codevector-waveform pulse positions from the ‘976 reference, directly contradicts the purpose (object) of the ‘588 reference. The Examiner’s rejection is devoid as to any substantive evaluation or other discussion as to how such a modification of the MPA speech coding approach of the ‘588 reference would or could function with the Code-Excited Linear Predictive (“CELP”) coding system of the ‘976 reference. Rather, the Examiner simply suggests that there is no need to modify the ‘588 reference (which is confusing and contradictory to the Section 103 rejection), or that the modification is proper simply because the two references are “in the same field of invention.” Appellant submits that, whether in the same field of invention or not, the Examiner has failed to show how the proposed modification of the ‘588 reference would function and succeed. Furthermore, Appellant has reviewed the ‘588 reference and cannot ascertain how the reference would function in a manner consistent with its objects or otherwise. In this regard, the proposed modification of the ‘588 reference is unmotivated because it would undermine the stated purpose, and is further unlikely to succeed. Therefore, the Section 103 rejections must be reversed.

**D: The Examiner has failed to cite any evidence of motivation for combining the ‘976 reference with the ‘588 reference.**

Before addressing the lack of motivation for modifying the ‘588 reference, Applicant notes that the Examiner’s Answer is confusing and requests clarification, should the rejections be maintained. Specifically, the Examiner has acknowledged that the ‘588 reference lacks teaching

of sequences of variable amplitude pulses (and has correspondingly resorted to Section 103 in rejecting the claims). However, the Examiner further indicates that such teaching is implicit (see page 14 of the Examiner’s Answer). The Examiner then goes on (at page 15 of the Examiner’s Answer) to suggest that there is no need to modify the ‘588 reference “because appellant has same structure [and] has performed same function.” This latter discussion on page 15 is particularly confusing, as the Examiner appears to be using the Specification of the instant application as motivation to import function to (*i.e.*, modify) the ‘588 reference. Regardless of their propriety, these assertions fail to establish motivation for modifying the ‘588 reference.

As discussed in detail with item A above, the ‘588 reference is not amenable to modification with sequences of variable-amplitude pulses because any such modification would frustrate its stated purpose, directed to the generation of sequences of equal-amplitude pulses. In short, the Examiner has failed to cite any evidence from the prior art that supports the proposed modification of the ‘588 reference. The Examiner then appears to suggest that the Appellant’s specification supports the modification of the ‘588 reference (and for further confusingly suggesting that there is no need to modify the ‘588 reference as discussed above), which is clearly an improper hindsight reconstruction. The Examiner’s further assertion that the ‘976 reference solves a “problem” of the ‘588 reference also fails because this alleged “problem” is simply the failure of the ‘588 reference to teach or suggest all of the claimed limitations. That is, the Examiner has shown no problem with the function of the ‘588 reference or no “fix” to such a problem. Furthermore, the Examiner’s assertion (on page 5 of the Examiner’s Answer) that the proposed modification of the ‘588 reference is supported by “good performance … without paying a heavy price” as indicated in the ‘976 reference fails to show how such alleged benefits would be imparted to the ‘588 reference with the proposed modification.

In addition to the above, the Examiner suggests, on one hand, that he “does not see any improvement over Bialik reference beside (sic) using language ‘varying amplitude’” (see page 14 of the Examiner’s Answer). On the other hand, the Examiner then suggests that modifying the Bialik reference with the ‘976 reference to include a sequence of variable amplitude pulses is motivated. Applicant submits that these statements are contradictory and demonstrate the impropriety of the proposed modification of the ‘588 reference and the lack of evidentiary support therefore.

In view of the above, the Examiner has failed to show any evidence of motivation for modifying the '588 reference as proposed. Therefore, the Section 103 rejections must be reversed.

**IV. CONCLUSION**

Appellant maintains that the claimed invention is patentable over the cited references, and that the claim rejections must be reversed. Appellant respectfully requests from the Board of Patent Appeals that the above issues be addressed and incorporated into the rendering of your Decision.

Please charge Deposit Account No. 50-0996 (8X8S.239PA) if it is believed that additional fees are necessary in connection with the filing of this Reply Brief.

Respectfully submitted,

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